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City of Hamilton

proposal for

perimeter industrial road study

by

C.C. Parker & Associates Ltd.

in association with

Kates, Peat, Marwick & Co.

Ecoplans Ltd.

Peto Associates Limited

D.M. Connor Development Services Ltd.

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June 29, 1973.

Mr. W. A. Wheten, P. Eng.,
City Engineer and Manager of Water Works,
Corporation of the City of Hamilton,
City Hall,
Hamilton, Ontario. L8N 3T4

Dear Sir:

Re: Perimeter Industrial Road

In response to your invitation for submissions for Consulting Engineering Services to carry out the study of a Perimeter Industrial Road from Burlington Street to Highway 403, we herewith submit our proposal.

We have studied the terms of reference supplied and have developed details of our approach in accordance with them. We agree that the consultant should have a broad capability and expertise in the social, economic planning and engineering fields. To accommodate this need, we have arranged to associate with other specialists to broaden our capabilities, and are pleased to put forward the following consultant team for this project, each recognized experts in their field:

C. C. Parker and Associates Ltd. - Team Co-ordination-
Route Analysis

Kates, Peat, Marwick & Co. - Transportation Plan-
ning and Economics,
Urban Planning and
Urban Design

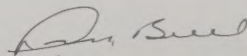
D. M. Connor Development Services Ltd.	- Public Participation and Social Impact
Ecoplans Ltd.	- Natural Environment
Peto Associates Ltd.	- Soils Investigation

You will note that most of the members of our team have specific knowledge of the study area as it relates to their expertise. In particular, C. C. Parker and Associates Ltd. have completed assignments within the study area including a preliminary study of the Perimeter Road between Victoria Ave. and Bay Street, the Burlington Street Improvements from Wellington to Strathearne, the East-West Freeway Functional Study, and the planning, design and construction management of Highway 403 through the study area. We believe this knowledge will be of great benefit to you in carrying out this project expeditiously and economically.

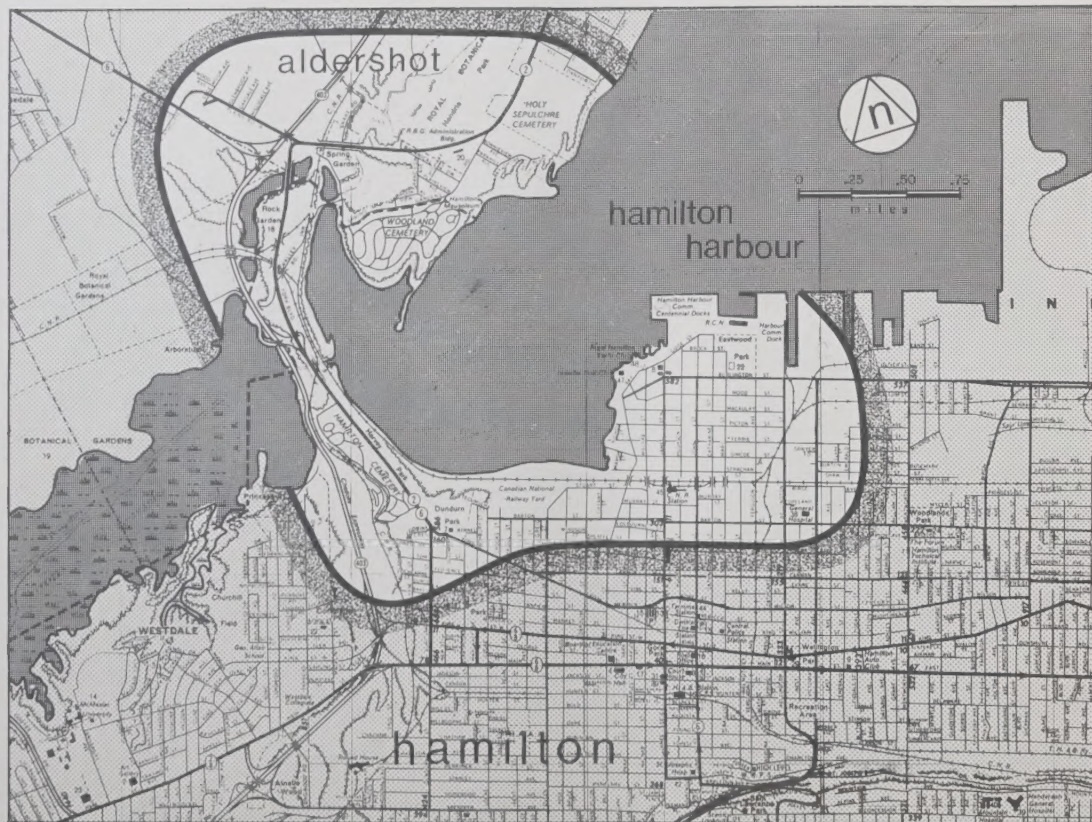
We appreciate the opportunity to submit this proposal and look forward to discussing our submission with your Committee.

Yours very truly,

C. C. Parker and Associates Limited



L. M. Bull, P. Eng.,
President.



study
area

exhibit 1

THE PROJECT

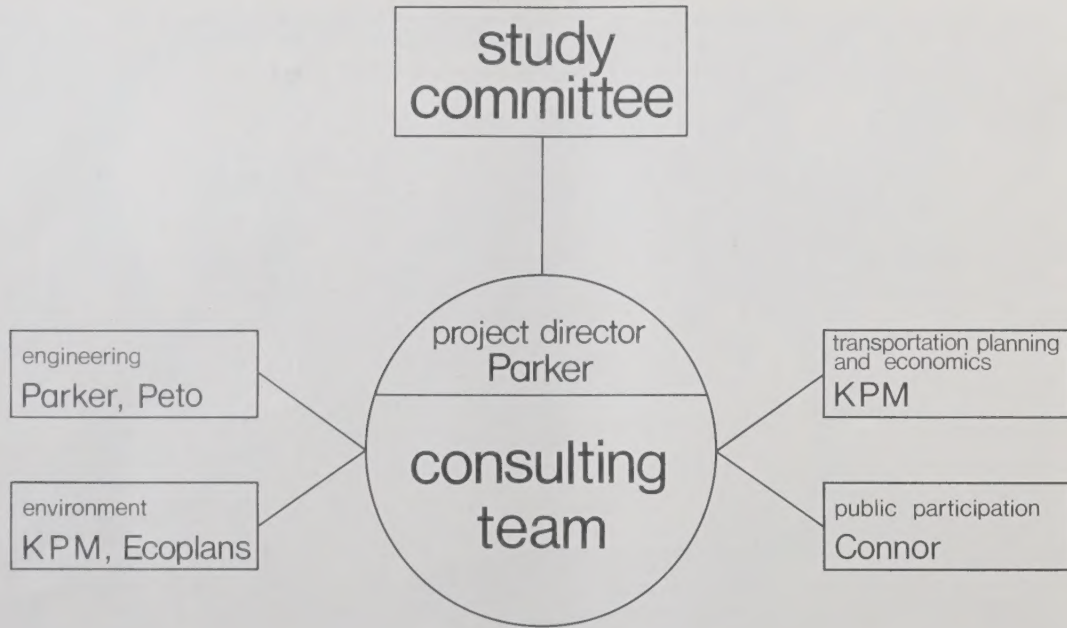
The proposed Perimeter Industrial Road will link Highway 403 with Burlington Street in the City of Hamilton. The purpose of the road will be to provide direct access for heavy industrial traffic from Highway 403 to the Bayfront industrial area and additional access to the Central Business District.

General terms of reference have been developed by the PETS committee of the City of Hamilton which form the basis of this proposal:

- to devise alternative routes to carry industrial traffic from Highway 403 to the north end industrial area and the Central Business District;
- to review alternatives;
- to recommend a proposed route.

The study area is shown in Exhibit 1. As directed in the terms of reference, the alternatives for the proposed route across this area shall:

- not inject heavy traffic through the Central Business District;
- provide continuity across the City, not conflicting with the lower City land uses;
- be kept to the periphery of the residential area.



organization
of the team

OUR TEAM

The study will require a team approach involving engineering, planning, social and environmental disciplines. Our team as described in this proposal can provide the necessary skills in a qualified team of persons experienced in the area's planning and implementation process.

The team is comprised of members of C. C. Parker and Associates Limited, Kates, Peat, Marwick & Co., D. M. Connor Development Services Ltd., Ecoplans Ltd., and Peto Associates Limited. The general organization of the team is illustrated in Exhibit 2. As indicated in this proposal, all of the participants have local experience that is relevant to the project. The previous working relationships among the team members will ensure an integrated approach.

It is proposed that Mr. L. M. Bull, President of C. C. Parker and Associates Ltd. would be the principal responsible for overall direction of the project. Mr. J. W. Disher, Manager of Highway and Municipal Departments and Director of C. C. Parker and Associates Ltd. would be Project Manager.

OUR APPROACH

During the past few years, the approach to urban transportation planning has been evolving rapidly in response to change in social attitudes, the recognition of the need for environmental management, and technological developments. The soon to be completed Hamilton Transportation Strategy Study recognizes the need for an evolutionary and broadly based approach to planning. The Strategy Study provides a broad framework for the planning and design of specific transportation projects such as the Perimeter Industrial Road.

Our approach to this assignment is based on the following considerations:

- there should be frequent meetings with the Study Committee to review findings and progress and to agree on the detailed study program;
- there must be close consultation at the working level between the members of the study team and interested agencies; such consultation will ensure that the study is in harmony with the other programs of these agencies;
- there must be continuing interaction among the many disciplines represented on the study team;
- there must be close liaison with various interest groups and the public at large to ensure a high degree of co-operation between the citizens and the technical team.

Characteristics of the Study Area

The development of the Perimeter Industrial Road presents many exciting possibilities and major engineering challenges. The opportunities include the opening of the waterfront to the citizens of Hamilton, the creation of a well-defined and interesting entrance to the City and environmental improvements in the harbour area and adjacent residential and commercial areas. The very features that create these opportunities, however, also present social, environmental and technical constraints. The constraints on road alignment include the Royal Botanical Gardens, the Cemetery, Dundurn Castle, the Desjardins Canal, the central and north end neighbourhoods, the CN line, the Stuart Street yard, and the shores of the harbour. The proposed road must fit within the community structure in the study area as well as serve its traffic function.

Transportation Planning and Economics

The specific objectives for this element of the study will be as follows:

- to document the need for the facility particularly for the movement of goods;
- to determine transportation planning criteria for consideration in the evaluation of alternatives;
- to identify the economic factors that should be considered in determining the justification for the proposed facility;

- to evaluate the relative economic impacts of alternative routes;
- to develop transportation planning information as input to the traffic analyses of alternative routes.

The major sources of information for these activities will be the information developed in the Hamilton Transportation Strategy Study, the data collected in the truck survey conducted by the City, and the traffic records of the City and the Ministry of Transportation and Communications, Ontario. This information will be supplemented by a series of interviews with the Hamilton Harbour Commission, major industries, the trucking industry, and the railways. It is anticipated that some additional traffic information will be required from the City of Hamilton including speed and delay information on the existing street system in the study area and some special traffic counts. We will review these information requirements in detail with the City at the beginning of the study. We do not propose at this time a computer based analysis in this study, such as a run of the TARMS and/or macro models.

Goods movements will be the major consideration in this aspect of the study. Accordingly, the interview program will be aimed at obtaining information on the future expansion of industrial output and commercial activities as they relate to trucking movements. Potential changes in modes will be considered, in particular, possible diversion of certain types of commodity movement to rail. Possible changes in origins/destinations and commodity types will also be considered. This

information together with the data from the City's recent truck survey will be used to prepare estimates of the major goods movements in the Perimeter Industrial Road corridor.

The information described above will provide a basis for confirming and documenting the need for the facility. This documentation will include estimates of future person trips and goods movements in the corridor. This documentation of need will be a basic output of the study and will be a direct input to the traffic analysis of alternative routes.

The transportation planning considerations will also include the identification of transportation planning criteria for the evaluation of alternatives. These criteria would be determined in close consultation with the City and the other members of the study team. These criteria will include:

- economic impacts including trucking costs, and the possible effects of improved access to the central city, port and the industrial area;
- the level of transit service available including the potential for the integration of new transit modes and park-and-ride facilities in the road corridor;
- level of traffic service including capacity, travel time and safety considerations;
- effect on traffic levels on local streets in the central area, adjacent neighbourhoods and industrial area.

Because of the proximity of railway lines, and in particular the CN Stuart Street yard, we believe that there will be some need to consider potential railway planning and operational implications. A general appraisal of possible railway development in Hamilton was carried out as part of the Strategy Study and this information will be useful in discussing and assessing the requirements of the railways in relation to the alternatives.

The economic analysis will be aimed at identifying major differences between alternatives in terms of economic impacts and to determine the economic considerations that will form part of the justification of the project. While certain direct benefits can be quantified for this analysis, it is recognized that some social and environmental costs and benefits are difficult to quantify. Where possible proxies for these social and environmental costs and benefits will be identified. Recent studies by the MTC will be of assistance in determining appropriate proxies.

Two cost/benefit analyses will be carried out in consultation with the study team and the City as follows:

- an economic comparison of the four alternative alignments that are selected for detailed studies;
- an economic comparison of phasing two alternatives for the proposed alignment.

Engineering

The basic components of this section include the following:

1. Compilation of Existing Information

All data from previous studies and reports relevant to the study area will be assembled. This information would include street inventories, utilities, soils data, physical constraints, etc. We understand that mapping at 100' and/or 200' scales will be supplied by the Client.

2. Soils Investigation

In general, the provision of soils information for purposes of establishing route possibilities will be based on existing data which will be compiled from previous investigations. A preliminary assessment of available soils data indicates that a considerable amount of information is available in the study area with the exception of the route alignment across the Harbour. Estimated costs associated with possible field investigations which may be required for a specific alternative are included as a contingency item.

3. Traffic Analysis

The framework for developing travel demand data was discussed in the section on Transportation Planning and Economics. This demand data will be analyzed on an hourly basis including consideration of morning and evening peak hours and trucking patterns. Hand assignments will be made to the alternative routes and intersecting streets. Appropriate volume/capacity and lane balance analysis will be carried out to define necessary basic lane requirements and intersection/interchange characteristics. As noted in the terms of reference, account will be made of:

- (a) a full-time prohibition of heavy vehicles on Aberdeen Avenue, Main Street, King Street, York Street and Cannon Street;
- (b) a part-time (11:00 p.m. - 7:00 a.m.) prohibition of heavy traffic on the streets listed in (a);
- (c) no prohibition of heavy traffic on the streets listed, except for York Street and Cannon Street.

4. Route Search and Feasibility Analysis

The four alternative routes as illustrated in Plans 1 to 4, City of Hamilton, will be investigated as to technical feasibility. Variations to each basic alternative will also be studied as may become evident during the course of the study.

Specifically, this aspect of the study will include consideration of:-

- appropriate design standards (with particular emphasis on truck requirements);
- location and grade of alternative routes;
- interchange and intersection configurations;
- major drainage facilities;
- major soils considerations;
- development of, or restrictions on, parallel and crossing facilities such as rail lines and utilities;
- the approximate property requirements;
- pavement, shoulder and median widths, future lanes, etc.
- structure geometrics, and clearances;
- general compatibility with environmental, social, urban planning/design, economic and transportation planning considerations;
- staging of construction;
- construction costs.

The alternative routes will be evaluated with respect to a set of criteria which will be established both on a technical basis and through liaison with interest groups, organizations and the general public.

Environment

A. Natural Environment

It is proposed that the following areas be investigated:

1. Vegetation - trees along streets, in the vicinity of the Dundurn Castle and in the Cemetery will be described (in homogeneous units). Species, age, quality of the trees of stand, and susceptibility to salt damage will be rated. Any potential value of vegetation as a visual screen from or to the highway, will be noted.
2. Wildlife - based on previous work on the Waterfront Study, and in contacts with local ornithologists, valuable areas for bird watching will be identified.
3. Historical and Archeological Sites - a search will be made of the Royal Ontario Museum files, and local and Federal archives on historical buildings to identify sensitive areas.
4. Noise - general qualitative comments will be made about the benefits of reducing truck traffic in residential neighbourhoods (based on some existing data), and the likely impact of noise on different possible new alignments in the study area. Using methods employed by the Ministry of Transportation and Communications, noise contours can be approximated for each alternative alignment. Such factors as grades, fills, cuts, traffic mix and operating speeds will be considered.

5. Air and water pollution - a review of these factors will be carried out from data available from the Waterfront Study and the Hamilton section of the QEW Study.

B. Urban Planning and Urban Design

The land use patterns in an urban area are closely intertwined with the transportation network. Consequently, our approach to this study will emphasize the urban planning implications of the proposed road. Similarly, at the scale of the immediate environs of the road, we propose a careful examination of the urban design aspects.

During the first stage of the study, information on urban planning will be obtained from existing sources in the City of Hamilton. Relevant information will be required on present land uses, including built up areas as well as parks and recreation spaces and on proposed plans for the City. Social characteristics which will be required include present and future population and employment data.

For the purpose of evaluation of alternative road alignments, planning criteria such as the following will be identified:

- implications for existing and proposed residential, commercial and industrial areas;
- impact on existing parks and recreation facilities (e.g. Dundurn Castle, Botanical Gardens, boating);
- urban planning opportunities arising from the development of the road corridor;

- effect on bicycle and pedestrian facilities in adjoining areas;
- the general amenity values for the corridor and qualitative implications of the view from, and to, alternative alignments.

The fundamental concern of the urban design study will be to identify means of inserting the road through an urban area with minimum disruption and taking maximum advantage of opportunities to use the transportation corridor to benefit the community. In this respect, the road will not be treated as a single-use facility dividing the City. Rather, we will explore alternatives which are integrated with the City, such as the extreme use of a road in tunnel which could be designed to have almost no effect on the adjacent neighbourhoods.

In terms of the urban design aspects of the road alternatives, existing information will be used in the first stage of the study. The need for additional information on the neighbourhoods adjacent to the road will be identified, including the potential need for a survey by the City of existing buildings and community facilities, and a review of proposals for the neighbourhoods. Evaluation criteria reflecting the urban design aspects of the road will be determined and applied during the subsequent phases of the study.

Social Impact and Public Participation

The social impact of this proposed facility can best be measured through a program of participation with various interest groups primarily within, or having distinct ties with,

the study area as well as on a more general level with the public at large.

Some important features of the study setting include:

1. The positive experience gained with many neighbourhood planning, urban renewal and related groups.
2. The challenges presented in confrontations over street widening, the filling of the harbour, etc.
3. The substantial impact which any alternative solution will have on a large number of city residents.
4. The number of sensitive issues and supporting interest groups likely to be involved.

The general objectives of this part of the study include:

- to establish a comprehensive understanding of:
 - (a) the people in the immediate study area;
 - (b) the leaders and members of key interest groups;

and to convey this understanding to other members of the study group. This will include their knowledge of, and attitudes towards, the transportation problems;

- to reduce misconception and hostility against the project and foster co-operative problem solving approval;
- to spend more effort in strengthening the voice of the majority and less in quelling dissent by vocal minorities;
- to create intergroup awareness of each others goals, priorities and proposals so that a developing understanding will emerge leading towards consensus.
- to enable all other interested to register their preferences on the final alternatives as simply as possible for the guidance of the study group and elected representatives.
- to contribute to a greater degree of integration within, and between, Citizens Groups and also between these groups and the study team.

The Public Participation Program

The public participation program is set out in such a manner as to provide a systematic opportunity for interest groups, organizations and the general public to work constructively with the Project Team in arriving at an acceptable solution for this route. The selected route must be technically sound, must minimize adverse social impact and, in general, satisfy those requirements represented by the various disciplines on the team.

The public participation program at this time assumes a mid-level interest among the area residents. This interest

level may, of course, vary depending upon the issues which will arise and the in-depth treatment necessary to satisfy these issues.

1. A community worker will be appointed to liaison with interest organizations and individuals and gather data on values, goals and opinions regarding the character of the proposed transportation facility.
2. The primary focus of the field work will be those residential neighbourhoods which could be directly affected by the route as well as individuals representing major physical constraints such as the Dundurn Castle, Royal Botanical Gardens, the Cemetery Board, the Parks Board and the CN railways.
3. The people outside of the study area (which would include the remainder of the City of Hamilton and adjacent communities) will generally be treated in a secondary manner, basically through the use of the media.
4. Initially, the field worker will establish appropriate lines of communication for the collection and dissemination of information. A number of methods seem available at this time:
 - integrate this study with other on-going projects in which City staff are engaged;
 - establish a continuing committee of relevant organizations, industries, neighbourhood groups, etc. which could meet at regular intervals, say monthly, with the project team and discuss any aspects of the study on an informal basis;

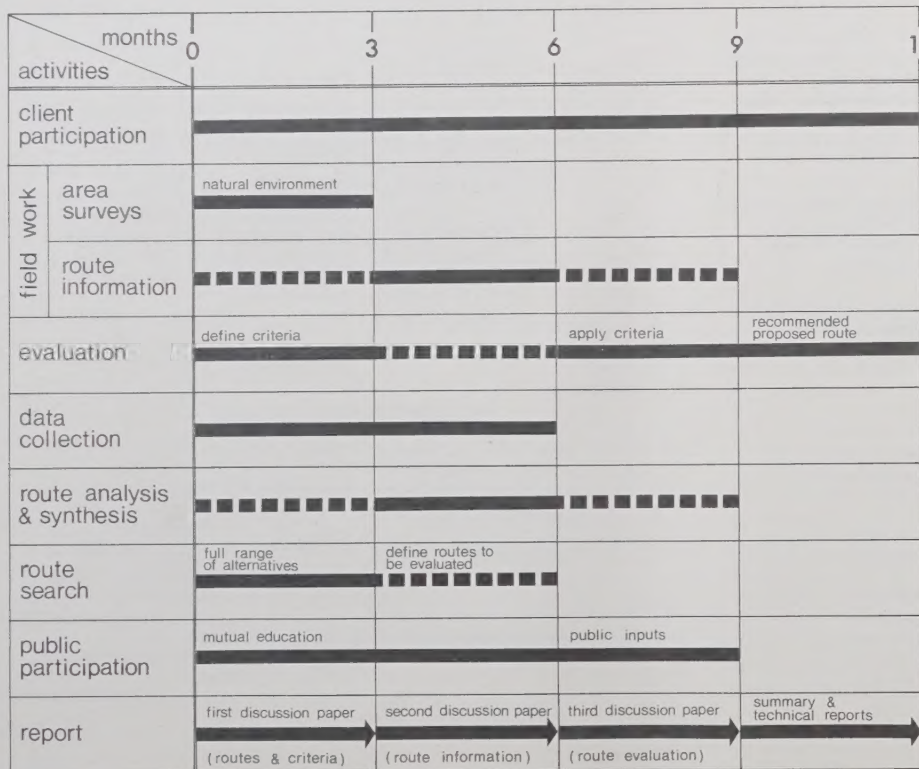
- interviews with various interested groups and organizations.

5. Analysis of data obtained from such activities noted in item 4 above is essential to a better understanding of the area to identify possible unique aspects of the study area. Further, this information will be translated into evaluation criteria and the relative importance given to these criteria for purposes of route selection.
6. A series of information exchanges would take place with interested groups, individuals and the general public depending upon the issues which arise, the type of treatment required, etc.

It is anticipated that at least one series of meetings with the general public will be required. This

would likely occur at about the end of the sixth month. Sufficient information would be supplied in order for the public to make an assessment and evaluation of the alternatives being studied by the team.

7. The number, location and schedule of meetings with organizations and the general public (in addition to those generally described in 6 above) can only be estimated at this time. The basic strategy will be to attend meetings called by relevant interest groups as well as on a regular basis with a committee of organizations as noted in point 4. The estimated cost of this part of the study is based upon one series of public meetings and several informal meetings with interested organizations.



ongoing stages

- programming
- design
- construction
- operation

major activity timetable

STUDY TIMETABLE

The timetable shown in Exhibit 3 is based on our review of the terms of reference, a preliminary examination of alternative alignments, and project management considerations. We propose a 12-month study schedule. Exhibit 3a illustrates in more detail the proposed timing of individual study components.

The first three-month period will involve general field surveys in the study area such as environmental surveys, the definition of preliminary evaluation criteria, the identification of a range of alternative routes, and the mutual education phase of the public involvement program. A discussion paper describing the range of alternative routes and the preliminary criteria will be prepared at the end of the third month.

During the second three-month period, attention will focus on viable alternatives. In estimating the basic budget requirements for the study, we have assumed that four routes would be studied in depth during this phase. In depth studies of additional routes may be warranted and some allowance for additional studies is included in the contingency item. Route specific surveys, such as soils surveys, will be conducted during this second phase. The

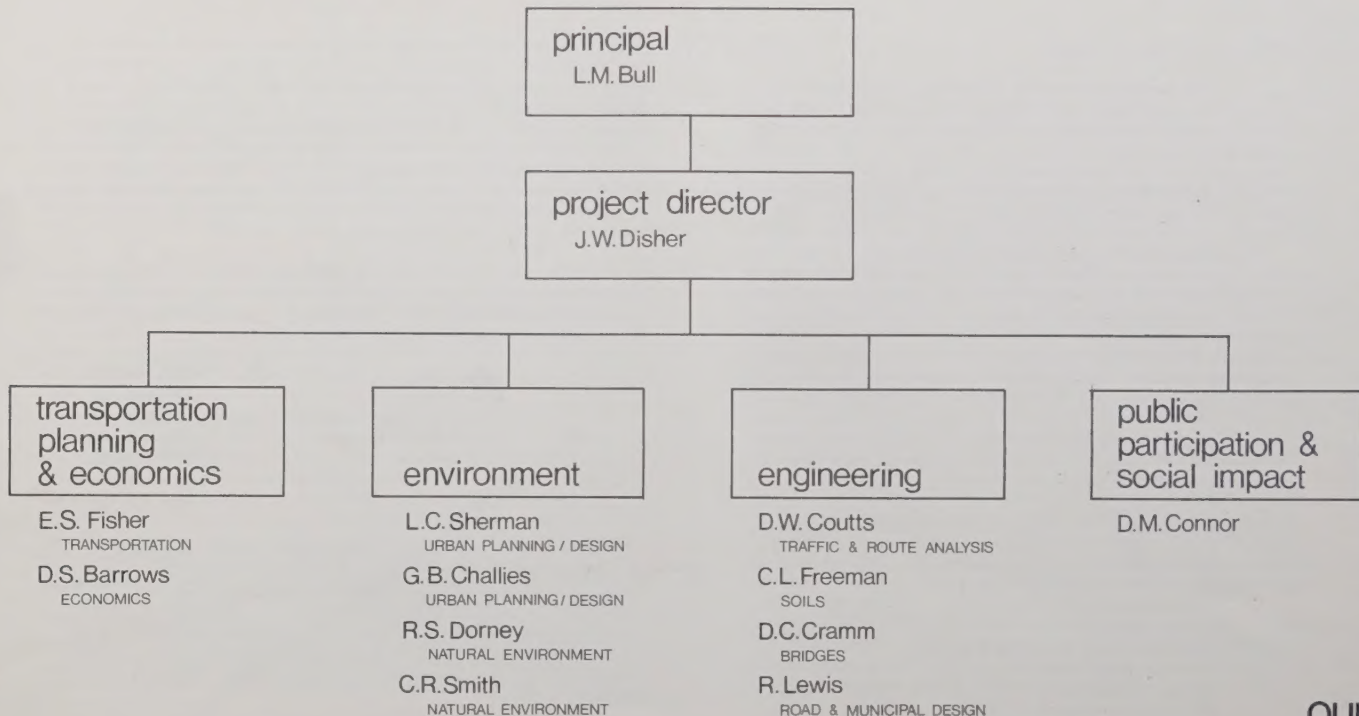
mutual education process will also continue through this period. A discussion paper describing the viable routes will be prepared at the end of the sixth month. At this point, formal public meetings will be held, and a newspaper request for selection of a route, plus evaluation criteria will be carried out.

The evaluation criteria will be finalized and applied during months six to nine. Public inputs will be an important part of this evaluation. The results of the evaluation will be described in a discussion paper which will be prepared at the end of the ninth month.

The final stage of the study will centre on the recommendation of a proposed route. We have allowed three months for this activity because of the need for close consultation with the study committee and the staff members of the participating agencies. A summary report will be prepared on the study findings and recommendations during this phase. A technical report will also be prepared drawing on the discussion papers, progress reports, and public inputs that are developed during the study. These reports will be submitted in draft form for review prior to the preparation of final reports at the end of month 12.

disciplines \ activities \ months	1	2	3	4	5	6	7	8	9	10	11	12
Environment												
NATURAL ENVIRONMENT, HISTORICAL, NOISE DATA												
URBAN PLANNING DATA												
URBAN DESIGN DATA												
ANALYSIS AND IMPLICATIONS												
EVALUATION INPUT												
Transportation Planning & Economics												
DATA COLLECTION, INTERVIEWS												
DEMAND ANALYSIS												
TRANSPORTATION PLANNING CRITERIA												
ECONOMIC ANALYSIS & IMPLICATIONS												
EVALUATION INPUT												
Engineering												
DATA COLLECTION												
ROUTE SEARCH & ANALYSIS												
EVALUATION CRITERIA, ROUTE COSTS												
EVALUATION AND ROUTE SELECTION												
Social Impact & Public Participation												
DATA COLLECTION & MUTUAL EDUCATION												
RESPONSE TO ALT'S & EVALUATION CRITERIA												
Client Participation												
Report												

activity
timetable
by
discipline



our
team

Fee and Method of Payment

The General Terms of Reference which form the basis of this proposal indicate that one of the services to be performed by the Consultant for the project will be to "provide detailed terms of reference and schedule for the study to include: a) task statements; b) work structure; c) methodology". This detailed information is necessary prior to setting a reliable consultant budget.

The details of our proposal outline the methodology we believe best for this project. It is expected that this methodology will be altered to suit the client-consultant team during the first part of the project, and will likely be further altered in detail as the project unfolds. Variables such as unpredictable public attitudes, the need for supplementary soil borings, etc., could affect the timing and the cost appreciably.

We have prepared the following estimate of cost of consulting services for the various elements described in this proposal:

<u>Discipline</u>	<u>Estimated Cost</u>
Environment	15,000
Social Impact and Public Participation	38,000
Urban Planning	12,000
Transportation Planning and Economics	24,000
Urban Design	11,000
Project Co-ordination, Route Studies & Analysis, Soils	70,000
Reports	10,000
Total Project	\$180,000

As noted previously, there are a number of aspects of the study which could result in work additional to that described in this proposal. This additional work may be necessary for a number of reasons, such as, the need to undertake more exhaustive investigations than normally required in certain aspects of the route analysis, or the need to study more alternatives than the four anticipated in this proposal. There are also items which are a cost to the project which are considered direct charges to the client, such as meeting notices, newspaper supplements, rental for public meeting places, etc.

We have listed below the possible costs of the items herein described which require a contingency allowance. Since all the items listed will not occur, we suggest a contingency allowance be set aside for approximately 50% of the total:

News Media	\$10,000.00
Soils Borings	\$15,000.00
Additional Alternatives	\$20,000.00
Public Participation	\$10,000.00
Environment	\$ 5,000.00
	\$60,000.00

It is our practice to provide professional services for planning projects on a time basis and consequently the charges could be less than the estimate shown. Payment of fees will be scheduled monthly on the basis of time and expenses incurred in the previous month. Charges will be based on Scale 1 of the current Scale of Fees for Consulting Engineering Services recommended by the Association of Professional Engineers of Ontario.

BACKGROUND OF FIRMS

C. C. PARKER & ASSOCIATES LIMITED

In over twenty-five years of continuous practice since the founding of C. C. Parker and Associates Limited in Hamilton in 1946, a broad experience has been acquired in planning, design and construction. The work of the firm encompasses all types of public works projects and corresponding assignments for private industry.

Approximately 100 persons comprise our staff of civil, structural, mechanical, electrical, mining, transportation engineers, engineering specialists, technologists, draftsmen and service employees. Their co-ordinated abilities enable us to provide, under a single management, the specialized as well as the normal skills required on each project.

Transportation Planning - Since completing the first major transportation study for the City of Hamilton in 1963, the firm has continued to provide planning services for a wide range of multi-disciplined projects both in Canada and abroad. These include a comprehensive Transportation Study for Trinidad and Tobago, a Traffic Study for McMaster University and a Canadian Pacific Railway Relocation Study in the City of Ottawa. We are presently engaged in a multi-disciplined road feasibility study for the Ministry of Transportation and Communications in which both Ecoplans Ltd. and Connor Development Services Ltd. are engaged. The purpose of the study is to plan a highway improvement which will satisfy anticipated travel demand requirements within the study area and, at the same time, be generally acceptable to the residents of the study area with due

respect to environmental, social, economic and physical constraints.

Streets and Highways - The Company has provided consulting services in planning, design and construction management for a wide range of street and highway projects particularly in the Hamilton area. These projects include Highway 403, the Queen Elizabeth Way Connections to the north-east entrance of the City, Burlington Street Improvements and functional planning work on York Boulevard. The Firm also conducted a functional study of an East-West Freeway for the City which was proposed to connect Highway 403 to the Q.E.W. at Highway 20, generally along an alignment adjacent to the major industrial area. In addition, our Firm conducted studies of the original Perimeter Road project which previously were confined to alignments adjacent to the North End Urban Renewal Area.

Municipal Services - Engineering services for a number of major water and sewer distribution systems have been provided in the Hamilton area including the planning and design of a major trunk watermain through the highly industrialized part of the City, the design of Pumping Station 4B and planning and design of West Campus Services for McMaster University.

Bridges - The Firm has been involved in the planning, design and construction supervision of a number of bridge projects in the Hamilton area including the structures on Highway 403, Burlington Street and on York Boulevard.

KATES, PEAT, MARWICK & CO.

Kates, Peat, Marwick & Co. is a diversified Canadian consulting firm with some 150 professional staff operating from eight offices across Canada. Our substantial practice in urban planning and urban transportation planning involves about 35 staff in our Toronto office. We work closely with the professional staff of our affiliated partnership, Peat, Marwick, Mitchell & Co. which has offices in Hamilton, Ontario and 18 other Canadian cities.

Kates, Peat, Marwick & Co. is owned and operated by Canadians. We are, by agreement, part of the worldwide family of firms known as Peat, Marwick, Mitchell & Co. one of the oldest and among the largest and most diversified public accounting and consulting groups in the world.

Our firm is now completing a Transportation Strategy Study for the City of Hamilton. The main objectives of the study were to determine the future transportation needs that will arise in the City and to identify basic strategies for meeting these needs. We were retained to supervise and assist a study team comprising consultant and City staff with professional support from the Ministry of Transportation and Communications, Ontario.

Our firm is participating in the transportation planning study for the Town of Mississauga. Our role in this study is similar to that on the Hamilton Transportation Strategy Study.

We are also undertaking a major transportation, public transit and traffic operations component of the Bogota Urban Transportation and Development Study and are providing consulting assistance to the Metropolitan Toronto Transportation Plan Review.

Recently, our firm completed a feasibility study for a large scale parking facility on the site of the Spadina Expressway in Toronto. The Study considered the possibility of intercepting a very large number of cars in an interchange terminal connected directly with both the regional expressway system and the metropolitan rapid transit system. Urban design considerations were a major component of this study.

Kates, Peat, Marwick & Co. have been providing professional consulting services to the Ministry of Transport for the development of airport facilities to serve the greater Metropolitan Toronto region. Urban and regional planning considerations have been and continue to be a major element in our approach to airport planning and related developments.

We have developed a prototype model and an operational concept for a benefit/cost system to assist the Federal Department of Industry, Trade and Commerce in improving the administration and management of the program for the advancement of industrial technology (PAIT). The benefit/cost model is designed to assist the economic impact of individual projects and of the overall PAIT program.

ECOPLANS LTD.

Ecoplans Ltd. consists of a group with experience in ecology, plant and animal science, limnology, biology, geography and soil science, and also general experience in urban and regional planning and the preparation and administration of development controls. The group has a particular interest in applying the knowledge of these disciplines to environmental problems. In addition, the group has access to other specialists whose advice may be required in connection with specific issues. With these resources, the Corporation is able to assemble teams with a very broad range of knowledge and experience appropriate to the specific question or issue to be examined.

Principals in the Corporation are as follows:

Dr. R. S. Dorney, Consulting Ecologist, Ph. D. 1949, University of Wisconsin in Animal Ecology and Veterinary Science. Professor School of Urban and Regional Planning, University of Waterloo.

Prof. S. G. Rich, M.T.P.I.C., M.R.A.I.C., A.I.P., A.R.I.B.A., Associate Professor, School of Urban and Regional Planning, University of Waterloo.

Mr. C. Kitchen, Consulting Ecologist, M.A. Planning 1968. Lecturer School Urban and Regional Planning, University of Waterloo.

Dr. M. G. George, Limnologist, Ph.D. Delhi University. Assistant Professor, School of Urban and Regional Planning, University of Waterloo.

Recent Projects

- Metropolitan Zoo Project, Toronto - Ecological Landscape Analysis; Pre-Impact Study

- City of Kitchener, Planning Office - Ecological Analysis of Country Hills Subdivision Design
- Metro/Regional Park Studies - Subconsultants to Canadian Mitchell, Bramalea, on various proposed Park Designs
- Highway 406 Environmental Impact Analysis, St. Catharines - subconsultant to Proctor and Redfern
- QEW Highway Impact Analysis, Hamilton Area - Subconsultants to McCormick, Rankin, Port Credit
- Pickering New Town of Cedarwood for Ontario Government Task Force; Ecoplans, Ltd. is part of the consortium of consulting firms called Plantown which were awarded the contract on the new town.
- Pickering Township subdivision study for Runnymede Developments Ltd. as sub-consultants in ecology for Dillon Engineering Ltd.
- Highway 7 Environmental Impact Analysis for Ontario Ministry of Transportation and Communications as sub-consultants with C. C. Parker and Associates Ltd.
- Highway 402 (London, Ontario bypass) Environmental Impact Analysis for Ontario Ministry of Transportation and Communications with Giffels Eng. (as subconsultants to Giffels).
- Highway 17 Environmental Impact Analysis for Ministry of Transportation and Communications as subconsultants for McCormick, Rankin and Associates Ltd.
- Hamilton Waterfront Study (1/4 mile strip from Oakville, Ontario to Grimsby, Ontario for Acres Ltd. (as part of a consortium for the Ontario Government.)

PETO ASSOCIATES LTD.

Peto Associates Ltd. commenced operations in 1956, providing a specialized consulting engineering service to Clients, Architects and Design Consulting Engineers with respect to Geotechnical Engineering. The firm has grown from a staff of 5 to approximately 60 people. The company owns and operates its own field drilling division and operates a fully equipped soils laboratory. Operations are based at Concord, Ontario at the northerly edge of Metropolitan Toronto and Branch offices are maintained in Windsor, St. Catharines, Hamilton and in Kitchener under the name of Kitchener Materials Testing Ltd.

The company also carries out construction inspection and testing of materials and are experts in the field of compaction control of earthworks, concrete testing and asphalt testing. With respect to concrete, the firm has pioneered in the introduction of new control techniques - the early strength testing of concrete.

In the Geotechnical work, the company has extensive experience with slope indicator instrumentation and has been a leader in the use of in situ pressuremeter testing techniques. The firm has also been responsible for the introduction and routine use of new field drilling equipment and techniques in Southern Ontario.

The company has carried out major geotechnical investigations for all levels of government, for many of the major industrial corporations based in Ontario and for most of the leading Architectural and Consulting Engineering firms in this part of Canada. A few of the more than 5,000 projects handled in the past 17 years are listed on this page.

1. Claremont Hill Mountain Access Road (CHARM)
2. Burlington Street Improvements
3. Hamilton Sewage Treatment Plant Extension
4. Hamilton Water Intake Structure
5. Red Hill Creek Collector Sewer
6. Stelco Office Building
7. Niagara Skylon Structure
8. Toronto Dominion Centre
9. Sudbury City Centre
10. Sault Ste. Marie Sewage Treatment Plant
11. Fairview Shopping Centre - Toronto
12. Manulife Centre - Toronto
13. Budd Automotive Plant - Kitchener
14. Bomarc Missile Base - North Bay
15. Numerous Bridges - Trans Canada Highway, Lake Superior District
16. CNR Rail Re-Location - Welland Canal Construction

D. M. CONNOR DEVELOPMENT SERVICES LTD.

Dr. Connor is a consulting sociologist and president of D. M. Connor Development Services Ltd. of Oakville. He holds degrees from the University of Toronto and Cornell University and has taught at St. Francis Xavier University in Nova Scotia and Carleton University in Ottawa. Currently he is conducting a graduate seminar in this subject in the School of Urban and Regional Planning at the University of Waterloo.

During the last five years he has specialized in the design and management of citizen participation programs e.g.: highway relocation studies such as Highways 417 and 416 in Ottawa and Highway 3 in Port Colbourne; comprehensive river basin planning such as the federal-provincial Saint John River Basin Study in New Brunswick and similar projects in western Canada; regional planning as in the Official Plan for the Regional Municipality of Ottawa-Carleton; park planning such as an active recreation park for the National Capital Commission, Ottawa. Dr. Connor is presently part of a study team conducting a Feasibility Study of Highway 7 near Stratford (with C. C. Parker and Associates Ltd.).

Among some 20 professional papers and publications, are a series of monographs - Understanding Your Community; Diagnosing Community Problems and Strategies for Development. He is also active in conference leadership and management development training.

STAFF RESUMES

C. C. PARKER & ASSOCIATES LTD.

Leslie M. Bull

President, Graduate of University of Manitoba in Civil Engineering 1935; Registered Professional Engineer, Ontario. Member: Engineering Institute of Canada, Association of Consulting Engineers, American Water Works Association, Canadian Institute on Pollution Control.

Mr. Bull has held senior engineering and administrative positions in government and the construction industry covering such fields as marine structures, airports, services, bridges, highways, both in the United Kingdom and Canada. Since joining C. C. Parker and Associates, he has been responsible for the firm's Reports and Studies Department; Principal-in-Charge of many of the firm's major projects; and latterly responsible for all operations of the firm's head office and branches.

Jerrold W. Disher

Manager, Highway and Municipal Departments, Director, C. C. Parker and Associates, Graduate in Civil Engineering, Queen's University, 1951. Registered Professional Engineer, Province of Ontario; Fellow, Institute of Traffic Engineers; Member: American Water Works Association, Pollution Control Association, Highway Research Board and the Canadian Society for Civil Engineering. Mr. Disher is responsible for the planning and design of rural and urban highways and municipal water and sewerage distribution, collection and treatment systems. Mr. Disher has been associated with C. C. Parker and Associates for over 20 years.

David C. Cramm

Manager, Bridge Department, Graduate in Civil Engineering, University of Toronto, 1948. Registered Professional Engineer, Province of Ontario. Member: Engineering Institute of Canada, American Concrete Institute, American Welding Society, International Association for Bridge and Structural Engineering and the American Society of Civil Engineers. For the past 25 years Mr. Cramm has specialized in the planning, design and supervision of construction for numerous bridges throughout Canada.

Douglas W. Coutts

Transportation Engineer, Graduate in Civil Engineering, University of Waterloo, B. A. Sc. 1963; M. S. Northwestern University in Civil Engineering (Transportation) 1966. Member: Institute of Traffic Engineers and Association of Professional Engineers of the Province of Ontario. Mr. Coutts has been involved in a number of multi-disciplined transportation studies both in Canada and abroad including a comprehensive Transportation Study of Trinidad and Tobago, and a Conceptual Planning Study, Ground Access, Road and Transit Systems, New Toronto International Airport. He is presently Feasibility Planner for a multi-disciplined Feasibility Study of Highway 7, near Stratford.

Robert Lewis

Assistant Manager, Highway and Municipal Department. Graduate in Civil Engineering, Queen's University, Belfast, 1961. Registered Professional Engineer, Province of Ontario.

Member: Canadian Society for Civil Engineering and Institution of Civil Engineers.
Since joining C. C. Parker and Associates in 1964, Mr. Lewis has specialized in the design and construction supervision of rural and urban highways and freeways as well as municipal projects involving storm sewers, sanitary sewers, and water supply systems. Projects for which he has been responsible, include Burlington Street Improvements and Main Street West - Reconstruction for the City of Hamilton; Highway 400 Widening, Highway 27 Subway approaches and Highway 403/410 for the Ministry of Transportation and Communications.

KATES, PEAT, MARWICK & CO.

N. A. Irwin

Partner, Group Chairman, responsible for the planning and transportation practice of Kates, Peat, Marwick & Co. Mr. Irwin directed the Hamilton Transportation Strategy Study and is now completing a major study of foreign ownership for the Ontario Select Committee on Economic and Cultural Nationalism. Mr. Irwin's experience in the transportation, economics and planning fields gives him the broad perspective which is so important to this project.

L. C. Sherman

Director, Urban Design and Facilities Planning, Mr. Sherman has been engaged in major urban transportation and development studies in Canada and the United States. He participated in the Hamilton Transportation Strategy Study and has recently completed assignments for the City of Regina relating intermediate capacity transit system development and its urban design implication.

E. S. Fisher

Mr. Fisher specializes in transportation planning and development projects. He played a senior role in the Hamilton Transportation Strategy Study and resided in Hamilton for many years. Mr. Fisher recently directed a major study of access to the New Montreal International Airport which included an evaluation of the urban planning and design implications of alternative routes and terminals and financial and economic analyses. He has also participated in a major economic analysis of highway programs in Brazil. His previous association with the C. C. Parker organization will lend strength to the team approach on this assignment.

David S. Barrows

Mr. Barrows is an industrial economist and has several years experience in the academic and government sectors as well as in consulting. He recently carried out a study of the economic benefits of linking certain nodes to the National Highway Study. Mr. Barrows interviewed the management of a number of Hamilton industries during a study of the transit manufacturing industry and a study of foreign ownership.

George B. Challies

Mr. Challies is an architect/planner and has participated in a number of major urban planning and design projects in Canada, France, Italy and the United States. Prior to joining Kates, Peat, Marwick, Mr. Challies participated in the planning of the Nun's Island development in Montreal and Park Forest South near Chicago. He is currently involved in the master planning and passenger terminal/air centre studies for the new Toronto airport.

R. B. Rebeiro

Mr. Rebeiro has been involved in several transportation projects in the Hamilton area including the Burlington/Oakville, Dundas and Brantford Transportation Studies. He had a major role in the Hamilton Transportation Strategy Study and developed a "macro" model for travel demand analysis of alternative development patterns in the Head of the Lake area.

Peter F. E. Lyman

Mr. Lyman specializes in urban/regional planning and land management. He is now completing his assignment as project manager on a study of foreign ownership in Ontario. Mr. Lyman has a varied experience including land management studies for the Ontario Committee on Government Productivity and the New Montreal International Airport Project, and an on-line assignment in the Master Planning Program for some 88 active Indian bands in Ontario.

Margaret A. Wilson

Mrs. Wilson specializes in economic evaluation procedures and goods transportation. During the Hamilton Transportation Strategy Study, she reviewed the population and economic trends in the Head of the Lake area. Mrs. Wilson carried out a detailed cost benefit analysis of alternative designs for the proposed Spadina Expressway/Rapid Transit system. She has participated in a number of port studies and in evaluation of unit train/air cargo container operations.

Victor F. J. Craig

Mr. Craig has been involved in several road and transit studies in Ontario and Australia. He has a special interest in trucking and prior to joining Kates, Peat, Marwick, he conducted an investigation for the Canadian Transport Commission of the effects of federal labour regulations on the extra-provincial road transport industry in Canada.

ECOPLANS LTD.

Robert S. Dorney

Dr. Dorney holds B. S., M. S., and PhD degrees in the areas of Education and Biology, Wildlife Management, and Veterinary Science and Wildlife Management respectively. He has published numerous publications relating to ecological and environmental problems and is currently involved in such studies as the Ecological Impact, Highway 406 St. Catharines, Environmental Impact Analysis, Highway 7 for the Ontario Ministry of Transportation and Communications, and the Hamilton Waterfront Study (as part of a consortium for the Ontario Government). Dr. Dorney is Chairman, School of Urban and Regional Planning, University of Waterloo; President, Ecoplans Ltd., Waterloo; and Vice-President, Ecoplans Inc., Saratoga Springs, New York.

George Mulamoottil

Dr. Mulamoottil holds a B. Sc. degree in Chemistry, Botany and Zoology, a M.Sc. degree in Zoology and a Ph D. degree in Limnology. He has published numerous papers in these areas and has been employed in a number of research and teaching positions. Presently Dr. Mulamoottil is Associate Professor and Graduate Officer in the School of Urban and Regional Planning, University of Waterloo.

S. George Rich

Mr. Rich attended Brighton School of Architecture and also the School of Planning, London University. He has published a number of papers on various planning and municipal government subjects and is currently involved in studies regarding Theory and Practice of Regional Government - Ontario and Manitoba. Mr. Rich is presently Deputy Director, School of Urban and Regional Planning, University of Waterloo.

Charles Ray Smith

Mr. Smith holds a B. A. in History from the University of Western Ontario and a M. A. from the School of Urban and Regional Planning, University of Waterloo. He has been involved in the Hamilton Waterfront Study as a special consultant in history, a special consultant in historical ecology for the Hamilton section of the Q.E.W. and has carried out graduate research on "Effects of Agriculture Practices on Surface Water Quality, Waterloo County."

PETO ASSOCIATES LIMITED

Clive Frank Freeman

A Vice-President of Peto Associates Limited, Mr. Freeman is a graduate of London University in Engineering in 1936. He is a member of the Association of Professional Engineers of Ontario and the Institution of Civil Engineers, U. K. Since joining Peto Associates Limited in 1957, Mr. Freeman has acted in the capacity of Chief Engineer and has been engaged in many types of soil foundation engineering projects including roads, services, tunnels, dams and commercial structures.

G. Durga Prasad

A Senior Engineer with Peto Associates Limited since 1967, Mr. Prasad obtained his Ph. D. in Soil Mechanics and Foundation Engineering for the University of Waterloo in 1968. He has written a number of theses and technical papers dealing with many aspects of soils and related problems. Since joining Peto Associates Ltd. he has been responsible for the Geotechnical Engineering of a number of major projects in Ontario including the Claremont Hill Mountain Access Road, Hamilton. Mr. Prasad is a member of the American Society for Testing Materials, American Society of Civil Engineers, Canadian National Society of Soil Mechanics and Foundation Engineering, Engineering Institute of Canada and the Association of Professional Engineers of Ontario.

Kuo-Lung Chang

Mr. Chang is a graduate of the University of Taiwan in 1961 and since that time has been involved in numerous projects involving highway design and soils problems. Since joining Peto Associates Limited in 1969, he has been involved primarily in soils and foundation engineering reports.

Adrian Philip Joseph

Mr. Joseph is a graduate of London University with B. Sc. and M. Sc. degrees in Engineering. Since 1970, he has been involved in a number of soils and foundation engineering problems with Peto Associates Limited. Mr. Joseph is a member of the Association of Professional Engineers of Ontario, the British Geotechnical Society, Institution of Civil Engineers and a Fellow of the Geological Society of London.

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